

S/N 09/945512

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Leonard Forbes                      Examiner: Richard Booth  
Serial No.: 09/945512                      Group Art Unit: 2812  
Filed: August 30, 2001                      Docket: 1303.027US1  
Title: IN SERVICE PROGRAMMABLE LOGIC ARRAYS WITH LOW TUNNEL  
BARRIER INTERPOLY INSULATORS

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

Assistant Commissioner for Patents  
P.O.Box 1450  
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicant respectfully requests that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicant requests that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicant with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 19-0743.

The Examiner is invited to contact the Applicant's Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

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By his Representatives,

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Date 6-9-03

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Marvin L. Beekman  
Reg. No. 38,377

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O.Box 1450, Alexandria, VA 22313-1450, on this 9<sup>th</sup> day of June, 2003

Andrew S. Rau  
Name

Marvin L. Beekman  
Signature

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Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>		Complete if Known <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Application Number</td> <td colspan="4">09/945512</td> </tr> <tr> <td>Filing Date</td> <td colspan="4">August 30, 2001</td> </tr> <tr> <td>First Named Inventor</td> <td colspan="4">Forbes, Leonard</td> </tr> <tr> <td>Group Art Unit</td> <td colspan="4">2812</td> </tr> <tr> <td>Examiner Name</td> <td colspan="4">Booth, Richard</td> </tr> </table>					Application Number	09/945512				Filing Date	August 30, 2001				First Named Inventor	Forbes, Leonard				Group Art Unit	2812				Examiner Name	Booth, Richard			
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		Sheet 1 of 2      Attorney Docket No: 1303.027US1																													

### US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate
	US-2001/0013621	08/16/2001	Nakazato, K	257	314	12/08/2000
	US-2001/0055838	12/27/2001	Walker, A J., et al.	438	129	08/13/2001
	US-2002/0028541	03/07/2002	Lee, T H., et al.	438	149	08/13/2001
	US-5,691,209	11/25/1997	Liberkowski, J B.	437	7	10/15/1996
	US-5,739,544	04/14/1998	Yuki, K , et al.	257	25	12/12/1995
	US-6,077,745	06/20/2000	Burns, M S., et al.	438	270	10/29/1997
	US-6,306,708	10/23/2001	Peng, N	438	266	02/02/2000
	US-6,433,382	08/13/2002	Orlowski, M , et al.	257	315	04/06/1995

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T <sup>2</sup>

### OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		AARIK, JAAN , et al., "Anomalous effect of temperature on atomic layer deposition of titanium oxide", <u>Journal of Crystal Growth</u> , (2000), pp. 531-537	
		AARIK, JAAN , et al., "Texture development in nanocrystalline hafnium dioxide thin films grown by atomic layer deposition", <u>Journal of Crystal Growth</u> , (2000), pp. 105-113	
		FERGUSON, J D., et al., "Atomic layer deposition of Al <sub>2</sub> O <sub>3</sub> and SiO <sub>2</sub> on BN particles using sequential surface reaction", <u>Applied Surface Science</u> , (2000), pp. 280-292	
		KIM, YONG S., et al., "Effect of rapid thermal annealing on the structure and the electrical properties of atomic-layer-deposited Ta <sub>2</sub> O <sub>5</sub> films", <u>Journal of the Korean Physical Society</u> , (December 2000), pp. 975-979	
		KIM, YEONG K., et al., "Novel capacitor technology for high density stand-alone and embedded DRAMs", <u>IEEE</u> , (2000), 4 pages	
		KUKLI, KAUPO , "Atomic Layer Deposition of Titanium Oxide from TiI <sub>4</sub> and H <sub>2</sub> O <sub>2</sub> ", <u>Chemical Vapor Deposition</u> , (2000), pp. 303-310	
		KUKLI, KAUPO , et al., "Atomic layer deposition of zirconium oxide from zirconium tetraiodide, water and hydrogen peroxide", <u>Journal of Crystal Growth</u> , (2001), pp. 262-272	
		KUKLI, KAUPO , et al., "Real-time monitoring in atomic layer deposition of TiO <sub>2</sub> from TiI <sub>4</sub> and H <sub>2</sub> O-H <sub>2</sub> O <sub>2</sub> ", <u>American Chemical Society</u> , (2000), pp. 8122-8128	

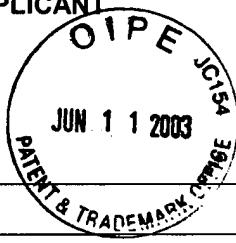
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DATE CONSIDERED

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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)



Complete if Known	
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<b>Group Art Unit</b>	2812
<b>Examiner Name</b>	Booth, Richard

Sheet 2 of 2

Attorney Docket No: 1303.027US1

**OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		LEE, J. , "Effect of Polysilicon Gate on the Flatband Voltage Shift and Mobility Degradation for ALD-Al <sub>2</sub> O <sub>3</sub> Gate Dielectric", <u>IEDM</u> , (2000), pp. 645-648	
		PARANJPE, AJIT , et al., "Atomic layer deposition of AlO <sub>x</sub> for thin film head gap application", <u>Journal of the Electrochemical Society</u> , (September 2001), pp. 465-471	
		SMITH, RYAN C., et al., "Chemical vapour deposition of the oxides of titanium, zirconium and hafnium for use as high-k materials in microelectronic devices. A carbon-free precursor for the synthesis of hafnium dioxide", <u>Advanced Materials for Optics and Electronics</u> , (2000), 2 pages	

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Substitute Disclosure Statement Form (PTO-1449)

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached